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ASSESSMENT OF THE AFIT
SURVEY OF WORK ATTITUDES:
HISTORY AND REVIEW OF THREE SCALES

THESIS

Mark L. Bergeron
Captain, USAF

AFIT/GLM/LSR/87S-5

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HISTORY AND REVIEW OF THREE SCALES

THESIS

Presented to the Faculty
of the School of Systems and Logistics
of the Air Force Institute of Technology
Air University
In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Logistics Management

Mark L. Bergeron, B.S.
Captain, USAF

September 1987

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Acknowledgements

This project was the result of many hours spent conducting research in the library. I want to thank my sons, Adam and Kyle, for their understanding when I was busy during weekends and when I needed "quiet!" at home. I also want to thank my advisor, Lt Col Ballard, for his support and encouragement. His "pep" talks re-motivated me at crucial times. Finally, I want to thank my father, Joe Bergeron, for his inspiration and his emphasis on the importance of education. Any success I have achieved is due in a large part through his sacrifices for me.

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Abstract

The purpose of this study was to make an initial assessment of the "AFIT SURVEY OF WORK ATTITUDES". The historical basis and the development of the survey were documented. Survey constructs and measurement scales were identified. A literature review was conducted to document the reliability/validity of three of the scales used in the survey to measure Job Satisfaction, Organizational Commitment and Participation in Decision Making. The literature was also searched to determine the frequency of use of each scale by researchers in the organizational behavior field.

The study found that the job satisfaction scale was not commonly used and an alternate scale was suggested. The organizational commitment scale was commonly used in research and had strong validity/reliability data. There was no one dominant participation in decision making scale (PDM) discovered in the review. It was recommended that the existing PDM scale be used but suggested that additional reliability/validity data be gathered.

ASSESSMENT OF THE AFIT
SURVEY OF WORK ATTITUDES:
HISTORY AND REVIEW OF THREE SCALES

I. Introduction

The United States Air Force (USAF) is concerned with organizational effectiveness. Employee work attitudes have an impact on the effectiveness of organizations:

The Hawthorne studies first highlighted the importance of worker attitudes. As a result of the attention given to small groups of employees who were being observed, the workers reported a free attitude about what they did on the job. They felt the organization was interested in them and they liked it. Their social and work activities changed and performance increased as well. These initial studies prompted the researchers to investigate further the attitudes of all the employees and an extensive program of interviewing was commenced. From these data management gained an insight into the employees' attitudes about work conditions, rate-busters, supervisors and many other issues which affected their behavior on the job (1:143).

The instrument used to measure work attitudes affects the analysis of data collected. Korman effectively states the need for accurate measurement, "The point is not that accurate measurement is nice. It is necessary, crucial, etc. Without it we have nothing" (2:194). Therefore, it is essential that instruments used for measuring attitudes be reliable and valid.

Over the years, different DOD and Air Force organizations have employed different instruments to collect attitudinal data. Some of these instruments include the AFIT Survey of Work Attitudes, The Leadership Management and Development Center (LMDC) Organization Assessment Package (OAP), as well as numerous other private sector organizational surveys. Some of these are discussed in this research effort. However, none of the instruments available is the standard for use in organizational research.

AFIT Survey of Work Attitudes

Currently, the "AFIT Survey of Work Attitudes" (ASWA) is used by Air Force consultants at AFIT in conducting organizational research. Numerous research has been reported in organizational literature based on this instrument. A list of studies using the ASWA is contained in Appendix A. The AFIT Survey was created in 1981. In the seven years since its inception, and in spite of several minor revisions, no effort has been made to document the historical development of the instrument, the rationale for existing scales, or assessment of the appropriateness and reliability of these scales.

The stated purpose of the AFIT Survey is to obtain information about the individual, the job, the working group and the organization of those taking the survey. The information collected is used to support research assessing

employee attitudes toward different aspects of their work environment.

The survey attempts to measure variables in 17 general areas as shown in Table 1. These general areas contain measures of different constructs as listed in Appendix C.

Table 1. General Content Areas of the
AFIT Survey of Work Attitudes

| | <u>General Areas</u> | <u>Page</u> |
|----|----------------------------|-------------|
| 1 | Demographic | 1 |
| 2 | Job Satisfaction | 3 |
| 3 | Supervisor's Assessment | 4 |
| 4 | Job Effort Rating | 5 |
| 5 | Future Work Plans | 5 |
| 6 | Organizational Information | 5 |
| 7 | Job Information | 7 |
| 8 | Work Role Attitudes | 8 |
| 9 | Work Goals | 10 |
| 10 | Job Characteristics | 13 |
| 11 | Job Feedback | 15 |
| 12 | Task Preferences | 15 |
| 13 | Task Demands | 17 |
| 14 | Situational Attributes | 18 |
| 15 | Goal Agreements | 18 |
| 16 | Self Perceived Ability | 18 |
| 17 | Performance Obstacles | 19 |

Some of the techniques used in the survey to measure these variables have strong support in research literature. Other techniques used were created ad hoc. There is no documentation on rationale for any survey variables. There is however a vast amount of research conducted in this area (1:152). It is possible to use this large body of

literature to assess content of the AFIT Survey of Work Attitudes by examining research on the variables contained therein and assessing its applicability to those attitudes measured in the AFIT Survey.

Research Objectives

The overall objective of this research is to contribute in part to a technical assessment of the AFIT Survey of Work Attitudes. Specific research objectives included:

1. Determining why the AFIT Survey was developed.
2. Determining how the AFIT Survey was developed.
3. Determining if scales used in the survey are representative of those currently being reported in research today.
4. Collecting and documenting data on scale properties from existing research.
5. Providing recommendations for which scales to use.

Scope/Limitations

This study was limited to an assessment of three of the scales used in the AFIT Survey. There was no effort made to conduct an independent statistical analysis of the ASWA using data collected with the instrument. This study reported only the research conducted on scales and variables which appear in the literature. The results of the research which has yielded data on scale properties is reported. In those cases where scales were not addressed in the

literature, there was no attempt to establish validity and reliability by conducting new research.

Plan of Study

The first step, parallel to the first objective, was to determine why the AFIT Survey was developed. Once the intended purpose was known, an assessment could be made on whether the ASWA is accomplishing its purpose. This was accomplished by interviewing Dr. Robert Steel, who is listed in the ASWA as point of contact. Dr. Steel was instrumental in the creation and development of the survey. A series of interviews was conducted.

It was important to learn how the AFIT Survey was developed. Knowing the rationale for scales used would aid in documenting the evolution of this survey. This information was gathered through the series of interviews with Dr. Steel. The source documents identified as rationale for a scale in the ASWA were analyzed and data on psychometric scale properties were included in this research.

It was also important to determine if scales used in the survey are representative of those currently being reported in research today. It was important that any "new scales" that emerged which were superior to the AFIT Survey scales be identified. A comprehensive literature review was conducted on the three scales used in the survey. This search was conducted by: (1) reviewing the work of Cook, Hepworth, Wall and Warr on 249 measures of work attitudes,

values, and perceptions gathered from a review of all articles in 15 principle journals from 1974 to mid-1980; and (2) reviewing the Social Science Citation Index (SSCI). The SSCI covers over 4700 journals which include virtually every discipline of the social sciences ranging from anthropology to urban planning and development. In the SSCI, all work which references an author can be identified.

It was necessary to collect validity and reliability data on the scales used. The current research was reviewed to determine if any researchers had validated and determined reliable the scales of interest in the ASWA.

Recommendations were provided on which scales to use. This was accomplished by reviewing and analyzing data gathered from the literature review. Those scales with sufficient reliability and validity data available were recommended for inclusion.

II. History

Background

The "AFIT SURVEY OF WORK ATTITUDES" (ASWA) was developed by the Air Force Institute of Technology (AFIT). AFIT is a component of Air University. The mission of AFIT is to provide education and training to meet Air Force requirements in scientific, technological, managerial, medical and other fields as directed by HQ USAF (4:2). The mission includes conducting research and providing consulting services to organizations throughout the Department of Defense. The "AFIT Survey of Work Attitudes" was developed as an instrument to gather data for use by AFIT for research and consulting services.

The survey instrument was created in AFIT's School of Systems and Logistics (AFIT/LS) in June 1981. The principal authors were Dr. Robert P. Steel, Maj. (now Lt Col) Nestor K. Ovalle, II, PhD., Dr. Anthony J. Mento, and Dr. Guy S. Shane. The authors were aided by Dr. Virgil R. Rehg, Dr. John W. Demidovich, and Lt Col Russell F. Lloyd, PhD.

The ASWA was designed as a broadbase survey questionnaire for use in collecting data in support of research assessing employee attitudes toward different aspects of their work environment. The survey was first administered in November 1982. Since then the survey has been administered to over 1,647 individuals in a variety of different

organizations ranging from a aircraft maintenance squadron to a hospital organization. A list of types of organizations surveyed is contained in Appendix B. Numerous studies have been conducted using data collected from the ASWA. A listing of these studies is contained in Appendix A.

The ASWA has undergone two revisions since the original was developed in June 1981. The selection of constructs to be measured was made by the principal authors and contributors. Selection was based on research studies the authors were planning to conduct. The researchers used their experience and review of the literature to arrive at a set of variables and associated scales to include in the survey. The specific rationale for selections were not documented. This collaborative survey development effort resulted in the original "AFIT SURVEY OF WORK ATTITUDES".

The current version of the survey is 19 pages long. It consist of 134 items divided into 17 different groups of constructs ranging from "BACKGROUND INFORMATION" to "PERFORMANCE OBSTACLES AND CONSTRAINTS". It measures 30 different dimensions of attitudes ranging from "JOB SATISFACTION" to "JOB FRUSTRATION". A breakout of attitudes measured by the 30 different variables is contained in Appendix C.

Currently, there are two studies underway which are analyzing the ASWA. This analysis will document the development of the survey instrument and will determine whether new research exists which may be used to improve the ASWA as

a survey instrument. Another research project is underway which will perform a statistical analysis of data collected using the survey to assess the validity and reliability of the instrument.

The first revision, designated Version II (USAF SCN 82-15), was the result of the researchers analysis of data collected using the survey. The analysis was not documented but included comparison of reliability measurements across samples and review of feedback from respondents. This initial review of the survey instrument resulted in a significant change to the original survey. These changes are summarized in the following paragraphs:

Changes to the Instrument

One change divided the survey into two parts. Part I measurements were considered "core measures". The core measures are to remain the same whenever the survey is administered. Part II contains variables that have potential for change depending on the specific research conducted. The division of variable into two parts allows the survey to be changed or adapted more easily.

Job Satisfaction. This variable remained in version II but the measurement scale was changed. The original version used the 21 item Minnesota Satisfaction Questionnaire. Version II used a 5 item scale developed by Andrews & Withey (5). The scales are shown in Tables 2 and 3.

Table 2. Original Job Satisfaction Scale

How satisfied are you in your present job? Use the following rating scale to indicate your satisfaction.

1. Means you are very dissatisfied with this aspect of your job.
 2. Means you are dissatisfied with this aspect.
 3. Means you can't decide if you are satisfied or not with this aspect of your job.
 4. Means you are satisfied with this aspect.
 5. Means you are very satisfied with this aspect of your job.
-
1. Being able to keep busy all the time.
 2. The chance to work alone on the job.
 3. The chance to do different things from time to time.
 4. The chance to be "somebody" in the community.
 5. The way my boss handles his men.
 6. The competence of my supervisor when he makes decisions.
 7. Being able to do things that didn't go against my conscience.
 8. The way my job provides for steady employment.
 9. The chance to do things for other people.
 10. The chance to tell people what to do.
 11. The chance to do something that makes use of my abilities.
 12. The way company policies are put into practice.
 13. My pay and the amount of work I do.

Table 2. (Continued)

-
14. The chances for advancement on the job.
 15. The freedom to use my own judgment.
 16. The chance to try my own methods of doing the job.
 17. The working conditions.
 18. The way my co-workers got along with one another.
 19. The praise I get for doing a good job.
 20. The feeling of accomplishment I got from the job.
 21. Enjoying the work itself.
-

Table 3. Version II Job Satisfaction Scale

Below are 5 items which relate to the degree to which you are satisfied with various aspects of your job. Read each item carefully and choose the statement below which best represents your opinion.

- 1 = Delighted
- 2 = Pleased
- 3 = Mostly satisfied
- 4 = Mixed (about equally satisfied and dissatisfied)
- 5 = Mostly dissatisfied
- 6 = Unhappy
- 7 = Terrible

8. How do you feel about your job?
9. How do you feel about the people you work with--your co-workers?
10. How do you feel about the work you do on your job--the work itself?
11. What is it like where you work--the physical surroundings, the hours, the amount of work you are asked to do?

Table 3. (Continued)

-
12. How do you feel about what you have available for doing your job--I mean equipment, information, good supervision, and so on?
-

Self Appraisal Measures. The original version of the survey contained three self appraisal measures: perceived work-group performance; perceived self performance and supervisor's assessment of performance. These measures are shown in Tables 4, 5 and 6. The authors believed one self appraisal measure was sufficient for their needs. Only the self appraisal measure based on supervisor feedback was included in Version II. The Version II measure is shown in Table 7. The response scale for this variable was changed to be consistent with the scale a supervisor was given when the supervisor would rate the subordinate. This eased comparison of supervisor and subordinate responses.

Table 4. Original Perceived Work-Group Performance

The following statements and questions deal with the performance of your work-group as you view it. Please think carefully of the things you and your work-group members produce by way of services and/or products as you respond to these questions.

Use the following rating scale to indicate the extent to which you agree or disagree with the statements and questions shown below.

Table 4. (Continued)

-
- 1 = strongly disagree
2 = moderately disagree
3 = slightly disagree
4 = neither agree or disagree
5 = slightly agree
6 = moderately agree
7 = strongly agree
22. The quantity of output of your work-group members is very high.
23. The quality of output of your work-group members is very high.
24. Your work-group members always get maximum output from the available resources (e.g., money, material, personnel).
25. Your work-group members do an excellent job anticipating problems that may come up and either preventing them from occurring or minimizing their effects.
26. When high priority work arises (e.g., "crash projects", and sudden schedule changes) your work-group members do an excellent job in handling and adapting to these situations.
-

Table 5. Original Perceived Self-Performance Measure

The following statements and questions deal with your view of your own performance. Your frame of reference should be your performance over the past six months or so in light of what is expected of you. Please think carefully of the various things you produce (major responsibilities of your assigned job) in the way of services and or products as you respond to these questions or statements.

Use the following rating scale to indicate the extent to which you agree or disagree with the statements and questions shown below.

Table 5. (Continued)

-
- 1 = strongly disagree
2 = moderately disagree
3 = slightly disagree
4 = neither agree or disagree
5 = slightly agree
6 = moderately agree
7 = strongly agree
27. The quantity of your output is very high.
28. The quality of your output is very high.
29. You always get maximum output from the available resources (e.g., money, material, personnel).
30. You do an excellent job anticipating problems that may come up and either preventing them from occurring or minimizing their effects.
31. When high priority work arises (e.g., "crash projects", and sudden schedule changes) you do an excellent job in handling and adapting to these situations.
-
-

Table 6. Original Supervisor's Assessment
of Your Performance

The following statements deal with feedback you receive from your supervisor concerning your performance. Your frame of reference should be your supervisor's evaluation of your performance in terms of formal feedback (i.e., periodic, written performance appraisals) and informal feedback (i.e., verbal communication on a day-to-day basis). Please think carefully about his/her evaluations of you over the past six months or so.

Use the following rating scale to indicate the extent to which you agree or disagree with the statements and questions shown below.

Table 6. (Continued)

-
- 1 = strongly disagree
2 = moderately disagree
3 = slightly disagree
4 = neither agree or disagree
5 = slightly agree
6 = moderately agree
7 = strongly agree
113. Your supervisor considers the quantity of your output to be very high.
114. Your supervisor considers the quality of your output to be very high.
115. Your supervisor believes you get maximum output from the available resources (e.g., money, material, personnel).
116. Your supervisor believes you do an excellent job anticipating problems that may come up and either preventing them from occurring or minimizing their effects.
117. Under situations when high priority work arises (e.g., "crash projects", and sudden schedule changes) your supervisor believes you do an excellent job in handling and adapting to these events.
118. Your supervisor has a very accurate knowledge of your performance.
119. Your supervisor provides you with clear, specific feedback about your performance.
-

Table 7. Version II Supervisor's Assessment
of Your Performance

The following statements deal with feedback you receive from your supervisor concerning your performance. Your frame of reference should be your supervisor's evaluation of your performance in terms of formal feedback (i.e., periodic, written performance appraisals) and informal feedback (i.e., verbal communication on a day-to-day basis). Please think carefully about his/her evaluations of you over the past six months or so.

Based upon the feedback you have received from your supervisor, using the rating scale below to indicate how your job performance would compare with other employees doing similar work.

- 1 = Far worse
- 2 = Much worse
- 3 = Slightly worse
- 4 = About average
- 5 = Slightly better
- 6 = Much better
- 7 = Far better

- 13. Compared with other employees doing similar work, your supervisor considers the quantity of the work you produce to be:
 - 14. Compared with other employees doing similar work, your supervisor considers the quality of the work you produce to be:
 - 15. Compared with other employees performing similar work, your supervisor believes the efficiency of your use of available resources (money, materials, personnel) in producing a work product is:
 - 16. Compared with other employees performing similar work, your supervisor considers your ability in anticipating problems and either preventing or minimizing their effects to be:
 - 17. Compared with other employees performing similar work, your supervisor believes your adaptability/flexibility in handling high-priority work (e.g., "crash projects" and sudden schedule changes) is:
-

Job Characteristics. Items in this section were originally based on those found in the Job Diagnostic Survey (JDS) developed by Hackmon and Oldham (6). In Version II, the authors dropped the feedback dimension and used the Job Characterist Inventory (JCI) scale. The authors decided to use the JCI based on a study by Sims, Szilagyi and Keller which demonstrated construct validity, reliability and convergent and discriminant validity across two diverse samples (7). The measures are shown in Tables 8 and 9.

Table 8. Original Job Characteristic Measures

47. To what extent does your job require you to work closely with other people (either "clients", or people in related jobs in your own organization)?

1-----2-----3-----4-----5-----6-----7

Very little; dealing with other people is not at all necessary in doing the job.

Moderately; some dealing with others is necessary.

Very much; dealing with other people is an absolutely essential and crucial part of doing the job.

48. How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing the work?

1-----2-----3-----4-----5-----6-----7

Very little; the job gives me almost no personal "say" about how and when the work is done.

Moderate autonomy; many things are standardized and not under my control, but I can make some decisions about the work.

Very much; the job gives almost complete responsibility for deciding how and when the work is done.

Table 8. (Continued)

49. To what extent does your job involve doing a "whole" and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the overall piece of work, which is finished by other people or by automatic machines?

1-----2-----3-----4-----5-----6-----7

My job is only a tiny part of the overall piece of work; the results of my activities cannot be seen in the final product or service.

My job is a moderate-sized "chunk" of the overall piece of work; my own contribution can be seen in the final outcome.

My job involves doing the whole piece of work; from start to finish the results of my activities are easily seen in the final product or service.

50. How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents?

1-----2-----3-----4-----5-----6-----7

Very little; the job requires me to do the same routine things over and over again.

Moderate variety.

Very much; the job requires me to do many different things, using a number of different skills and talents.

51. In general, how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?

1-----2-----3-----4-----5-----6-----7

Not very significant; the outcomes of my work are not likely to have important effects on other people.

Moderately significant.

Highly significant; the outcomes of my work can affect other people in very important ways.

Table 8. (Continued)

52. To what extent do managers or co-workers let you know how well you are doing on your job?

1-----2-----3-----4-----5-----6-----7

Very little; people almost never let me know how well I am doing.

Moderately; sometimes people may give me "feedback"; other times they may not.

Very much; managers or co-workers provide me with almost constant "feedback" about how well I am doing.

53. To what extent does doing the job itself provide you with information about your work performance? That is, does the actual work itself provide clues about how well you are doing--aside from any "feedback" co-workers or supervisors may provide?

1-----2-----3-----4-----5-----6-----7

Very little; the job itself is set up so I could work forever without finding out how well I am doing.

Moderately; sometimes doing the job provides "feedback" to me; sometimes it does not.

Very much; the job is set up so that I get almost constant "feedback" as I work about how well I am doing.

SECTION TWO

Listed below are a number of statements which could be used to describe a job. You are to indicate whether each statement is an accurate or an inaccurate description of your job.

Once again, please try to be as objective as you can in deciding how accurately each statement describes your job--regardless of whether you like or dislike your job.

How accurate is the statement in describing your job?

- 1 - Very inaccurate
- 2 - Mostly inaccurate
- 3 - Slightly inaccurate
- 4 - Uncertain
- 5 - Slightly accurate
- 6 - Mostly accurate
- 7 - Very accurate

Table 8. (Continued)

-
54. The job requires me to use a number of complex or high-level skills.
 55. The job requires a lot of cooperative work with other people.
 56. The job is arranged so that I do not have the chance to do an entire piece of work from beginning to end.
 57. Just doing the work required by the job provides many chances for me to figure out how well I am doing.
 58. The job is quite simple and repetitive.
 59. The job can be done adequately by a person working alone--without talking or checking with other people.
 60. The supervisors and co-workers on this job almost never give me any "feedback" about how well I am doing in my work.
 61. This job is one where a lot of other people can be affected by how well the work gets done.
 62. The job denies me any chance to use my personal initiative or judgment in carrying out the work.
 63. Supervisors often let me know how well they think I am performing the job.
 64. The job provides me the chance to completely finish the pieces of work I begin.
 65. The job itself provides very few clues about whether or not I am performing well.
 66. The job gives me considerable opportunity for independence and freedom in how I do the work.
 67. The job itself is not very significant or important in the broader scheme of things.
-

Table 9. Version II Job Characteristic Measures

SECTION TWO

5. How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing the work?

1-----2-----3-----4-----5-----6-----7

Very little; the job gives me almost no personal "say" about how and when the work is done.

Moderate autonomy; many things are standardized and not under my control, but I can make some decisions about the work.

Very much; the job gives almost complete responsibility for deciding how and when the work is done.

6. To what extent does your job involve doing a "whole" and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the overall piece of work, which is finished by other people or by automatic machines?

1-----2-----3-----4-----5-----6-----7

My job is only a tiny part of the overall piece of work; the results of my activities cannot be seen in the final product or service.

My job is a moderate-sized "chunk" of the overall piece of work; my own contribution can be seen in the final outcome.

My job involves doing the whole piece of work; from start to finish the results of my activities are easily seen in the final product or service.

7. How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents?

Table 9. (Continued)

| 1----- | 2----- | 3----- | 4----- | 5----- | 6----- | 7----- |
|---|--------|--------|-------------------|---|--------|--------|
| Very little; the job requires me to do the same routine things over and over again. | | | Moderate variety. | Very much; the job requires me to do many different things, using a number of different skills and talents. | | |

8. In general, how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?

| 1----- | 2----- | 3----- | 4----- | 5----- | 6----- | 7----- |
|--|--------|--------|-------------------------|---|--------|--------|
| Not very significant; the outcomes of my work are <u>not</u> likely to have important effects on other people. | | | Moderately significant. | Highly significant; the outcomes of my work can affect other people in very important ways. | | |

SECTION TWO

Listed below are a number of statements which could be used to describe a job. You are to indicate whether each statement is an accurate or an inaccurate description of your job. Once again, please try to be as objective as you can in deciding how accurately each statement describes your job--regardless of whether you like or dislike your job.

How accurate is the statement in describing your job?

- 1 - Very inaccurate
- 2 - Mostly inaccurate
- 3 - Slightly inaccurate
- 4 - Uncertain
- 5 - Slightly accurate
- 6 - Mostly accurate
- 7 - Very accurate

9. The job requires me to use a number of complex or high-level skills.
10. The job is arranged so that I do not have the chance to do an entire piece of work from beginning to end.

Table 9. (Continued)

-
11. The job is quite simple and repetitive.
 12. This job is one where a lot of other people can be affected by how well the work gets done.
 13. The job denies me any chance to use my personal initiative or judgment in carrying out the work.
 14. The job provides me the chance to completely finish the pieces of work I begin.
 15. The job gives me considerable opportunity for independence and freedom in how I do the work.
 16. The job itself is not very significant or important in the broader scheme of things.
-

Work Role Attitude Measures. Questions 83-85 were eliminated because the author felt they were redundant with other feedback measurements in the survey.

Questions 86-88 were eliminated because author did not like the measurement proprieties.

In Version II, the participative decision making variable was measured using a 5 item scale (Ques 50-54) versus the 4 item scale (Ques 69-71) in the original. The questions were reworded to improve the face validity and reliability of these items.

Questions 72-74, in the original survey, measured the role overload construct. These items were not included in V II because the construct was no longer pertinent to the researcher's interest.

Questions 75 and 76, in the original survey, were measurements of stress. In Version II, these two questions were reworded for clarity. Item 57 was added to Version II to measure the aspect of organizational causes of stress.

In the original version, items 77-79 measured interpersonal trust. In Version II, these items were reworded to improve clarity.

In the original version items 89-91 measured the organizational communication climate. In Version II, the scale was expanded by one item to improve measurement reliability. The scales are shown in Tables 10 and 11.

Table 10. Original Work Role Attitudes Measure

This section of the questionnaire contains a number of statements that relate to feelings about your work group, the demands of your job, and the supervision you receive. Use the following rating scale to indicate the extent to which you agree or disagree with the statements shown below.

- 1 = Strongly disagree
- 2 = Moderately disagree
- 3 = Slightly disagree
- 4 = Neither agree nor disagree
- 5 = Slightly agree
- 6 = Moderately agree
- 7 = Strongly agree

- 68. Within my work-group the people most affected by decisions frequently participate in making the decisions.
- 69. In my work-group there is a great deal of opportunity to be involved in resolving problems which affect the group.
- 70. My work-group is very effective in making decisions.

Table 10. (Continued)

-
71. My work-group is very effective in the process of group problem solving (i.e., clearly defining/specifying the problem(s), developing and evaluating alternative solutions, and, selecting, implementing and evaluating a solution).
 72. I don't have enough time to do everything that is expected of me on my job.
 73. The amount of work I have to do interferes with how well it gets done.
 74. I have work standards that cannot be met given my time constraints.
 75. My work (job) causes me a great deal of stress and anxiety.
 76. My life away from my work causes me a great deal of stress and anxiety.
 77. In general, people tell the truth, even when they know they could benefit by lying.
 78. Generally speaking, most people are inclined to look out for themselves rather than helping others.
 79. If given the chance, most people will try to take advantage of others rather than trying to be fair.
 80. There is a high spirit of teamwork among my co-workers.
 81. Members of my work group take a personal interest in one another.
 82. If I had a chance to do the same kind of work for the same pay in another work group, I would still stay here in this work group.
 83. My supervisor lets me know when I am doing a poor job.
 84. My supervisor lets me know when I am doing a good job.
 85. I can determine for myself how well I am doing my job without feedback from anyone else.
 86. My supervisor represents the group at all times.
 87. My supervisor performs well under pressure.

Table 10. (Continued)

-
88. My supervisor is a good planner.
89. My organization provides all the necessary information for me to do my job effectively.
90. My work group is usually aware of important events and situations.
91. My supervisor asks members of my work group for our ideas on task improvements.
-

Table 11. Version II Work Role Attitudes Measure

This section of the questionnaire contains a number of statements that relate to feelings about your work group, the demands of your job, and the supervision you receive. Use the following rating scale to indicate the extent to which you agree or disagree with the statements shown below.

- 1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

50. Within my work-group the people most affected by decisions frequently participate in making the decisions.
51. In my work-group there is a great deal of opportunity to be involved in resolving problems which affect the group.
52. I am allowed to participate in decisions regarding my job.
53. I am allowed a significant degree of influence in decisions regarding my work.
54. My supervisor usually asks for my opinions and thoughts in decisions affecting my work.

Table 11. (Continued)

-
55. My job (e.g., the type of work, amount of responsibility, etc.) causes me a great deal of stress and anxiety.
 56. Relations with the people I work with (e.g., co-workers, supervisor, subordinates) cause me a great deal of stress and anxiety.
 57. General aspects of the organization I work for (e.g., policies and procedures, general working conditions) tend to cause me a great deal of stress and anxiety.
 58. Most people are not always straightforward and honest when their own interests are involved.
 59. In these competitive times one has to be alert or someone is likely to take advantage of you.
 60. It is safe to believe that in spite of what people say, most people are primarily interested in their own welfare.
 61. There is a high spirit of teamwork among my co-workers.
 62. Members of my work group take a personal interest in one another.
 63. If I had a chance to do the same kind of work for the same pay in another work group, I would still stay here in this work group.
 64. My immediate supervisor makes an effort to help people in the work group with their personal problems.
 65. My immediate supervisor insists that members of our work group follow to the letter all policies and procedures handed down to him.
 66. My immediate supervisor seeks the advice of our work group on important matters before going ahead.
 67. My immediate supervisor pushes the people under him (or her) to insure they are working up to capacity.
 68. My organization provides all the necessary information for me to do my job effectively.
 69. My work group is usually aware of important events and situations.

Table 11. (Continued)

-
70. The people I work with make my job easier by sharing their ideas and opinions with me.
71. People in my work group are never afraid to speak their minds about issues and problems that affect them.
-

Work Goals. In the original version, the three item scale used to measure goal clarity (Item 92), goal difficulty (Item 93), and goal realism (Item 94) were ad hoc measurements. In Version II, the scales used were developed from Ivancevich and McMahon (8). The scales are shown in Tables 12 and 13.

Table 12. Original Work Goal Measure

The following three statements deal with your perceptions of the nature of goals and objectives that guide your work. Use the rating scale given below to indicate the extent to which your work goals have the characteristics described.

- 1 = Not at all
2 = To a very little extent
3 = To a little extent
4 = To a moderate extent
5 = To a fairly large extent
6 = To a great extent
7 = To a very great extent

92. To what extent do you know exactly what is expected of you in performing your job?
93. To what extent are your job performance goals difficult to accomplish?
94. To what extent are your job performance goals realistic?
-

Table 13. Version II Work Goal Measure

The following statements deal with your perceptions of the nature of goals and objectives that guide your work. Use the rating scale given below to indicate the extent to which your work goals have the characteristics described.

- 1 = Strongly disagree
- 2 = Moderately disagree
- 3 = Slightly disagree
- 4 = Neither agree nor disagree
- 5 = Slightly agree
- 6 = Moderately agree
- 7 = Strongly agree

- 72. I know exactly what is expected of me in performing my job?
- 73. I understand clearly what my supervisor expects me to accomplish on the job.
- 74. What I am expected to do at work is clear and unambiguous.
- 75. I understand the priorities associated with what I am expected to accomplish on the job.
- 76. It takes a high degree of skill on my part to attain the results expected for my work.
- 77. Results expected in my job are very difficult to achieve.
- 78. It takes a lot of effort on my part to attain the results expected for my work.
- 79. I must work hard to accomplish what is expected of me for my work.
- 80. I must exert a significant amount of effort to attain the results expected of me in my job.

Table 13. (Continued)

PART II

- 1 = Means you strongly disagree with the statement
2 = Means you moderately disagree with the statement
3 = Means you slightly disagree with the statement
4 = Means you neither agree nor disagree
5 = Means you slightly agree with the statement
6 = Means you moderately agree with the statement
7 = Means you strongly agree with the statement

1. The amount of work I am expected to accomplish on the job is realistic.
 2. The results I am expected to attain in my work are realistic.
 3. What my supervisor expects me to accomplish on my job is not impossible.
 4. I find that the results that I am expected to attain in my work are achievable.
-

Future Work Plans. The original version contained two items measuring intent to remain. Item 97 was eliminated. Item 97 was initially included as an experimental question to see if it was a better predictor than Item 96. It was subsequently decided that there was no need for two questions so the experimental question (Item 97) was eliminated.

Instructions for this section were reworded in Version II. The change was based on feedback from respondents who expressed confusion on what level organization they should use as a relevant in responding to this question. The measures are shown in Tables 14 and 15.

Table 14. Original Future Work Plan Measure

Use the two rating scales given below to indicate your future work plans with respect to the Air Force.

96. Within the coming year, if I have my own way:

- 1 = I definitely intend to remain with the Air Force.
- 2 = I probably will remain with the Air Force.
- 3 = I have not decided whether I will remain with the Air Force.
- 4 = I probably will not remain with the Air Force.
- 5 = I definitely intend to separate from the Air Force.

97. All things considered, I really think that I will still be with the Air Force one year from now.

- 1 = Strongly agree
 - 2 = Agree
 - 3 = Don't agree or disagree
 - 4 = Disagree
 - 5 = Strongly disagree
-

Table 15. Version II Future Work Plans

Use the rating scale given below to indicate your future work plans with respect to the Air Force or whatever equivalent service/company to which you belong.

19. Within the coming year, if I have my own way:

- 1 = I definitely intend to remain with the Air Force.
 - 2 = I probably will remain with the Air Force.
 - 3 = I have not decided whether I will remain with the Air Force.
 - 4 = I probably will not remain with the Air Force.
 - 5 = I definitely intend to separate from the Air Force.
-

The second revision, designated Version III (USAF SCN 85-30), was relatively minor.

The measurement of individual's organizational perception was eliminated and measures of job constraints and job frustration were added.

III. Analysis of Scales

Job Satisfaction

Current AFIT Survey of Work Attitude Job Satisfaction Measure. The AFIT Survey of Work Attitudes currently contains a 5 item scale for measuring job satisfaction. This scale was taken from a book entitled Social Indicators of Well-Being by Frank M. Andrews and Stephen B. Withey, published in 1976. This book documented their research about perceptions of well-being. Their study investigated how perceptions are organized in the minds of different groups of American adults, how to best measure perceptions of well-being, and offered suggestions on ways measurement methods could be implemented to yield a series of social indicators. Andrews and Withey developed a list of 123 items used to assess affective evaluation of specific concerns. The 5 items used in the ASWA are taken from this 123 item list. Andrews and Withey use these 5 items plus one other question which ask for one's feelings on pay, fringe benefits and job security.

Andrews and Withey use the Delighted-Terrible (D-T) scale. It contains seven on scale categories plus three off-scale categories which allow the respondent a chance to not respond if the respondent thought the question irrelevant or too difficult.

The ASWA did not include the off-scale portion of the D-T scale. Andrews and Withey were attempting to improve on previously available methods for measuring affective evaluations. One of the prime considerations of the authors in developing the scale was to improve on a scale used by Campbell, Converse, and Rodgers (9). Campbell, Converse and Rodgers used a scale ranging from "completely satisfied" to "completely dissatisfied". Andrews and Withey were concerned about the "markedly skewed distributions" obtained using the "satisfaction" scale. They hoped to reduce the skew by adding more affect to the scale.

The D-T scale has seven categories. Andrews and Withey cite work by Miller (10) as evidence that a seven-point scale is as fine as a person can discriminate in many judgment tasks. From a statistical stand point, Andrews and Withey cite work by Cochran (11), Conner (12) and Ramsay (13) as evidence that seven categories are all that is needed to capture essentially all of the potential variance.

Andrews and Withey also wanted their scale clearly labeled to reduce different interpretations of what a particular point on the scale actually means. Finally, they thought it important that the scale contain an avenue for no response instead of forcing a respondent to answer a question which he/she may have found irrelevant or not applicable.

Andrews and Withey used data gathered in the months of July, May, April, October and November to estimate validity coefficients for the D-T scale as well as several other well known scales. The author's gathered data assembled in Table 16 below which provides a comparison of different measure methods for different well-being factors. The authors obtained validity estimates for the D-T scale of .70. April data revealed a validity estimate of .77. Two versions of a measurement model was applied to November data with version 1 yielding a .82 validity coefficient and version 2 yielding a .76 validity coefficient. A validity estimate of .60 was obtained from October data.

Reliability was estimated as .61 for May data, .71 for November data, and .68 for April data. These reliability estimates were derived using two items in the survey that focused on the identical global aspect of well being that were both measured by the D-T scale. The authors view this as a classical short-term test-retest reliability coefficient since the respondents' answers were measured then remeasured only ten to twenty minutes apart.

Another concern of the authors in developing the D-T scale was to develop a scale which would yield more symmetrical distributions of responses. This allows proper application of statistical techniques and allows the researcher to discriminate among a wider range. The authors

Table 16. Estimated Validity Coefficients for July Data

| Measurement method: | D-T scale | Faces scale | Circles scale | Ladder scale | Social comparison | Others rating |
|-------------------------|--------------|----------------|------------------|-----------------|----------------------|------------------|
| Validity coefficients: | | | | | | |
| Housing | .83(.58) | .87(.85) | .77(.83) | .70(.70) | .46(.45) | .48(.51) |
| Spare time | .69 | .77 | .73 | .82 | .44 | .37 |
| National government | .87 | .81 | .85 | .85 | a | .38 |
| Standard of living | .79 | .77 | .80 | .70 | .38 | .37 |
| Freedom or independence | .82(.84) | .82(.83) | .83(.82) | .78(.79) | .40(.46) | .35(.31) |
| Life-as-a-whole | .79(.78) | .85(.80) | .59(.58) | .59(.59) | .16(.15) | .40(.42) |
| Median validity | .82 | .82 | .80 | .70 | .42 | .38 |

a Data not obtained.

Values in parentheses are replications from independent solutions involving overlapping subsets of the well-being measures.

Adapted from (5:188)

gathered data shown in Table 17 below which shows distribution results of the D-T scale and the satisfaction scale. Table 18 reflects data generated which compares the distribution of D-T scales with other scales. Based on their validity estimates, distribution, category labeling and the ease of use, the authors conclude that, while not perfect with respect to their criteria, the D-T scale ranks ahead of all other methods.

Use of the D-T scale in Current Job Satisfaction Research. Current job satisfaction literature was reviewed in an effort to determine whether any further validation of Andrews and Withey's scale by independent researchers was conducted. In addition, the review was conducted to see if research data on job satisfaction was being collected using Andrews and Withey's 5 item, D-T scale.

The first source reviewed was a book entitled The Experience of Work: A Compendium and Review of 249 Measures and Their Use by John D. Cook, Sue J. Hepworth, Toby D. Wall, and Peter B. Warr. The authors conducted an exhaustive review of measures of work attitudes, values and perceptions employed in all articles in 15 principal journals from 1974 to mid-1980. In reviewing the articles the authors used 3 criteria in selecting scales for inclusion in their review. These criteria were:

- (1) Scales must operationalize a construct reflecting individuals' experience of paid employment.

Table 17. Comparison of Distributions Produced by the Delighted-Terrible and Seven-Point Satisfaction Scales for Feelings about Life-as-a-Whole

| Survey: Scale: Measure: ^a | Nov. Form 1 | | | Nov. Form 2 | | |
|--|-------------|-------------|--|-------------|-----------|-------------|
| | D-T G1 | Sat. G29 | | D-T G1 | D-T G2 | Sat. G29 |
| Scale categories | | | | | | |
| Positive feelings | | | | | | |
| 7 | 10.6% | 12.5% | | 8.5% | 11.3% | 14.1% |
| 6 | 34.6% | 40.9% | | 35.3% | 36.7% | 43.8% |
| 5 | 39.5% | 26.7% | | 39.8% | 36.9% | 23.5% |
| 4 | 11.8% | 13.6% | | 12.6% | 10.6% | 11.2% |
| 3 | 2.2% | 4.3% | | 2.3% | 2.9% | 4.9% |
| 2 | 0.8% | 1.5% | | 1.1% | 0.7% | 1.5% |
| 1 | 0.5% | 0.5% | | 0.4% | 0.9% | 1.0% |
| Negative feelings | | | | | | |
| Total | 100.0% | 100.0% | | 100.0% | 100.0% | 100.0% |
| Mean: | 5.34 | 5.37 | | 5.30 | 5.38 | 5.42 |
| s.d.: | 1.00 | 1.14 | | 0.99 | 1.05 | 1.20 |
| skew: | 0.72 | 0.89 | | 0.77 | 0.95 | 1.11 |

^a All items assess feelings about life-as-a-whole. Measure G1 is called Life 1, G2 is Life 2, and G29 is Seven-point Satisfaction. See Appendix D for question wording.

Adapted from (5:208)

Table 18. Comparison of Distributions
Produced by the Delighted-Terrible,
Faces, Ladder, and Circles Scales

| Survey: Scale: Measure: ^a | April | | | July | | |
|--|--------|------|------|-------|------|---------|
| | Ladder | | D-T | Faces | | Circles |
| | G1 | G7 | | G5 | G6 | |
| Scale categories | | | | | | |
| Positive feelings | | | | | | |
| 9 | b | 7% | b | b | 4% | 3% |
| 8 | b | 11% | b | b | 10% | 24% |
| 7 | 10% | 23% | 8% | 20% | 29% | 35% |
| 6 | 34% | 23% | 40% | 46% | 29% | 25% |
| 5 | 39% | 23% | 36% | 27% | 18% | 10% |
| 4 | 12% | 7% | 10% | 4% | 4% | 2% |
| 3 | 2% | 3% | 3% | 1% | 3% | 0% |
| 2 | 2% | 2% | 3% | 2% | 2% | 1% |
| Negative feelings | 1% | 1% | 0% | 0% | 1% | 0% |
| Total | 100% | 100% | 100% | 100% | 100 | 100 |
| Mean: | 5.30 | 6.06 | 5.32 | 5.72 | 6.11 | 6.76 |
| s.d.: | 1.05 | 1.58 | 1.04 | 1.02 | 1.46 | 1.15 |
| skew: | 1.05 | 0.29 | 0.97 | 1.40 | 0.69 | 0.64 |

^a All items assess feelings about life-as-a-whole. Measure G1 is called Life 1, G5 is Faces: whole life, G6 is Ladder: whole life, G7 is Circles: whole life. See Appendix D for question wording.

^b Nonexistent category for this scale.

Adapted from (5:209)

(2) Scales must be able to be completed by respondents by themselves or through interview and must contain specified response alternatives with a numerical weight.

(3) A scale must contain at least 3 relatively homogeneous items.

These criteria were used in reviewing articles published between the years 1974 to mid-1980 which were contained in the following periodicals: Academy of Management and Journal, Administrative Science Quarterly, British Journal of Industrial Relations, Human Relations, Industrial Relations, International Review of Applied Psychology, Journal of Applied Psychology, Journal of Applied Social Psychology, Journal of Management Studies, Journal of Occupational Behavior, Journal of Occupational Psychology, Journal of Vocational Behavior, Organizational Behavior and Human Performance, Personnel Psychology, and Personnel Review. This resulted in a review of over 4000 articles.

Since Andrews and Withey's scale was developed in 1976, it falls within the time frame of the above mentioned review. It also meets the criteria for inclusion in the review. However, nowhere in this review is the 5 item, D-T scale mentioned. In fact, Andrews and Withey's work is not even referenced.

The literature review was continued by using the Social Science Citation Index (SSCI). If job satisfaction researchers were using the D-T scale, one would assume Andrews and Withey would be referenced in the work. In

conducting the review, all appropriate journals between the years 1984 and August 1986 which were related to work attitudes/job satisfaction research and which had articles citing Andrews and Withey's 1976 work on social indicators of well-being were identified. These journals included Academy of Management Journal, Administrative Science Quarterly, Human Relations, Industrial Relations, Journal of Applied Psychology, Journal of Applied Social Psychology, Journal of Management, Journal of Occupational Behavior, Journal of Occupational Psychology, Journal of Vocational Behavior, Organizational Behavior and Human Performance, Personnel Psychology, Personnel Review, Basic Applied Psychology, Social Psychology Quarterly, Journal of Personality, Psychological Reports, Journal of Personality and Social Psychology, Psychological Bulletin, and Academy of Management Review.

In 1984 Andrews and Withey's 1976 work was referenced 39 times. Of these 39 references only one appeared in one of the journals listed above. Their work was cited in Psychological Bulletin. However, the citation was not in reference to the D-T scale. No information on the D-T scale was included.

In 1985 there was 41 references to Andrews and Withey's 1976 work. This time there were more citations in appropriate journals. Seven articles were investigated. These were broken down as listed in Table 19.

Table 19. 1984 Journal Breakout - Andrews and Withey

| <u>Journal Name</u> | <u># of Articles</u> | <u># Pertaining to D-T Scale</u> |
|---|----------------------|----------------------------------|
| Basic Applied Psychology | 2 | 0 |
| Journal of Personality and Social Psychology | 2 | 0 |
| Academy of Management Review | 1 | 0 |
| Journal of Management | 1 | 1 |
| Psychological Bulletin | 1 | 0 |

The one article which had commented on the D-T scale was on article by AFIT researchers Steel, Mento, Dilla, Ovalle, and Lloyd (14). Their article reported research on factors influencing effectiveness of quality circle programs. One factor measured was job satisfaction. The D-T scale was the measurement instrument used. this, in fact, is the job satisfaction scale contained in the ASWA. In this article the authors cite reliability coefficients of .78 for the job satisfaction measure.

In 1986 the SSCI contained 23 references to Andrews and Withey's 1976 work. The breakout of articles investigated is listed in Table 20. The one article pertaining to the D-T scale was an article by Lounsbury and Hoopes (15). This article reported the effect of vacation on six variables. One of the six variables was job satisfaction. The authors report internal consistency reliability (alpha) values of .94 for prevacation measurements and .95 for postvacation measurements.

Table 20. 1985 Journal Breakout -- Andrews and Withey

| <u>Journal Name</u> | <u># of Articles</u> | <u># Pertaining to D-T Scale</u> |
|--|----------------------|----------------------------------|
| Basic Applied Psychology | 1 | 0 |
| Social Psychology Quarterly | 1 | 0 |
| Journal of Applied Psychology | 1 | 1 |
| Journal of Personality and Social Psychology | 1 | 0 |

Organizational Commitment

The ASWA measures organizational commitment using the Organizational Commitment Questionnaire (OCQ). In 1979 Mowday, Steers and Porter published a summary of research on the development and validation of the OCQ (16). Mowday, Steers and Porter use Porter and Smith's definition of organization commitment as the basis for the instrument development (17). Organizational commitment is defined in terms of an attitude involving active commitment to an organization. Porter and Smith characterize organizational commitment in three ways: "(1) a strong belief in and acceptance of the organization's goals and values; (2) a willingness to exert considerable effort on behalf of the organization; and (3) a strong desire to maintain membership in the organization"(17).

The OSQ is a 15 item measure which uses a 7-point Likert scale with response ranging from strongly agree to

strongly disagree. This scale was designed to capture the three aspects of organization commitment identified by Porter and Smith (17). Six items are negatively worded and reversed scored in order to reduce response bias. This measure is contained in the ASWA.

To evaluate the OCQ, Mowday Steers and Porter collected data from a diverse group of employees from different organizations and with different job classifications. This survey was administered to 2563 employees in nine different organizations. In some cases a short form version of the OCQ, where negatively worded items were eliminated, was used. The types of employees surveyed were in governmental agencies, universities, hospitals, banks, telephone companies, research laboratories, automotive manufacturing firms, psychiatric wards, and national retail sales organizations.

The authors' assessment of the OCQ included an examination of the following psychometric properties:

- (1) means and standard deviations
- (2) internal consistency reliability
- (3) test-retest reliability
- (4) convergent validity
- (5) discriminant validity
- (6) predictive validity
- (7) norms.

The results of the analysis of the seven areas are discussed below.

Means and Standard Deviations. The distribution of scores from surveys of the different organizations are listed in Table 21 below.

Table 21. Means, Standard Deviations, and Internal Consistencies for OCQ

| | N | Mean | SD | Coefficient |
|--|-----|--|--|-------------|
| Public employees | 569 | 4.5 | .90 | .90 |
| Classified university employees ^a | 243 | 4.6 | 1.30 | .90 |
| Hospital employees ^a | 382 | 5.1 | 1.18 | .88 |
| Bank employees | 411 | 5.2 | 1.07 | .88 |
| Telephone company employees ^a | 605 | 4.7 | 1.20 | .90 |
| Scientist and engineers ^a | 119 | 4.4 | .98 | .84 |
| Auto company managers | 115 | 5.3 | 1.05 | .90 |
| Psychiatric technicians ^b | 60 | 4.0/3.5 4.3/3.5 4.3/3.3 4.0/3.0 | 1.00/1.00 1.10/0.91 0.96/0.88 1.10/0.98 | .82-.93 |
| Retail Management trainees | 59 | 6.1 | .64 | NA |

^a A nine-item shortened version of the OCQ was used in this study.

^b For this sample, means and standard deviations are reported separately for stayers and leavers across four time periods.

Reprinted from (16:232)

The means are all slightly above the midpoint on the seven point Likert scale. The authors conclude that the standard deviations are acceptable for distribution of the scores.

Internal Consistency Reliability. Internal consistency reliability was measured by calculating the (Cronbach) coefficient alpha, by item analysis and by factor analysis. The results for coefficient alpha are contained in Table 21 above. The item analysis are shown in Table 22.

The authors report high coefficient alphas with a median of .90. They conclude these results compare favorably with most attitude measures.

Item analysis is the correlation of each item score with the total score less the item. Upon examination of the item analysis data one can see a range of average item total correlation between .36 and .72 with a median correlation of .64. The authors conclude these results suggest that the 15 items are all homogeneous in measuring the organizational commitment construct.

Factor analysis was conducted on 6 samples with the results rotated to Kaiser's varimax solution (18). They report that the analysis generally supported the theory that the items were all measuring the same construct.

Test-Retest Reliability. Test-retest reliability figures were calculated for psychiatric technicians and retail management trainees. Psychiatric technicians were tested over 2, 3 and 4 month intervals with reliability calculated for $r=.53$, $.63$ and $.75$ respectively. Retail management employees were tested over 2 and 3 month periods with reliability figures of $r=.72$ and $.60$ respectively.

Table 22. Item Analyses for the Organizational Commitment Questionnaire

| OCQ item | Public employees | Classified university employees | Hospital employees | Scientists and engineers | Bank employees | Telephone company employees | Average item-total correlations |
|------------------|---------------------|---------------------------------------|-----------------------|--------------------------------|-------------------|-----------------------------------|---------------------------------------|
| No. ^a | employees | employees | employees | engineers | employees | employees | correlations |
| 1 | .46 | .72 | .62 | .54 | .53 | .56 | .57 |
| 2 | .73 | .63 | .75 | .61 | .71 | .73 | .69 |
| *3 | .48 | | | | .39 | .40 | .43 |
| 4 | .33 | .17 | .33 | .35 | .35 | .46 | .38 |
| 5 | .69 | .80 | .65 | .67 | .66 | .65 | .68 |
| 6 | .79 | .67 | .76 | .63 | .74 | .75 | .72 |
| *7 | .37 | | | | .30 | .28 | .36 |
| 8 | .72 | .61 | .69 | .57 | .64 | .72 | .67 |
| *9 | .51 | | | | .45 | .55 | .47 |
| 10 | .72 | .72 | .73 | .56 | .71 | .73 | .69 |
| *11 | .67 | | | | .62 | .63 | .64 |
| *12 | .48 | | | | .51 | .45 | .47 |
| 13 | .56 | .70 | .63 | .48 | .68 | .62 | .62 |
| 14 | .75 | .70 | .70 | .64 | .69 | .72 | .70 |
| *15 | .65 | | | | .60 | .71 | .64 |

^a An asterisk indicates item is reversed in scoring. Reverse scored items were omitted from short form.

Reprinted from (16:232)

They conclude these figures compare favorably to other attitude measures and cite work by Smith et al as an example where JDI test-retest reliabilities ranged from .45 to .75 (19).

Evidence of Convergent Validity. The authors examines the following five criteria for evidence of convergent validity:

- (1) The OCQ should be related to other measures of organizational commitment.
- (2) Organizational commitment should be related to intent to remain.
- (3) Commitment should be related to motivation to perform and intrinsic motivation.
- (4) Individuals with a high work orientation in their central life interest are expected to possess higher organizational commitment.
- (5) Supervisor's independent organizational commitment rating should be related to organizational commitment measured by the OCQ.

The results of the analysis (correlation of the five criteria are summarized in Table 23.

Evidence of Discriminant Validity. In determining evidence of discriminant validity, the OCQ was compared against measures of job involvement, career satisfaction, and job satisfaction. If discriminant validity exist, there should be little relationship between two distinct construct. The authors used Lodahi and Kejner's measure for job involvement, Steers and Braunstein measure for career satisfaction and the Job Descriptive Index for different

Table 23. Convergent Validities for the OCQ

| | SOA ^a | Intent to leave | Intended length of service | Intrinsic motivation | Motivational force to perform | Central life interest | Behavior rating |
|---|------------------|-------------------|----------------------------|----------------------|-------------------------------|-----------------------|-----------------|
| Public employees | .71 | -.63 | .51 | .44 | | | |
| Classified university employees | | -.32 ^b | | | | | |
| Hospital employees | .70 | -.31 | | | .45 | .39 ^b | |
| Bank employees | .69 | | | | | | |
| Telephone company employees | .74 | | | | .42 | .43 ^b | |
| Scientists and engineers | .63 | .38 | | | | | |
| Auto company managers | .74 | | | | | | |
| Retail management trainees ^c | | | | | .43 .45 .35 | | .60 |

^a Sources of Organizational Attachment Questionnaire.

^b coefficient.

^c Concurrent correlations available from three time periods in a longitudinal study.
Adapted from (16:235)

facets of job satisfaction(20)(21). The data is summarized in Table 24. The authors contend that because high correlations are typically found between various job attitudes at the same point in time, these correlations are sufficiently low to provide some evidence of discriminant validity. The authors do admit, however, that the correlations are too high to demonstrate conclusive evidence of discriminant validity.

Evidence of Predictive Ability. Part of the authors concept of organizational commitment is the belief that commitment involves a willingness for a committed individual to perform for the organization and for the individual to want to stay with the organization. Several studies were used to evaluate the OCQ with these two characteristics of organizational commitment. Summary data is provided in Table 25.

Turnover correlations were evaluated from five different studies. Four from previous work by the authors and one (Hom, Katerbery and Hulin) by independent research measuring reenlistment of part-time military personnel (22). The authors conclude these correlations figures are evidence for a consistent inverse commitment-turnover relationship. They further conclude that tenure was adequately correlated based on studies of public employees and hospital employees. Absenteeism figures were obtained from three studies. Two of the studies indicated an expected inverse relationship

Table 24. Discriminant Validities for the OCQ

| Samples | Job involvement | Career satisfaction | Job satisfaction (JDI) | | | |
|--------------------------------------|-----------------|---------------------|------------------------|-------------|-----|------------|
| | | | Work | Supervision | Pay | Promotions |
| Public employees | .55 | | | | | |
| Classified university employees | .54 | | | | | |
| Hospital employees | .56 | .40 | | | | |
| Scientists and engineers | .50 | .39 | | | | |
| Park employees | | | .63 | .46 | .37 | .43 |
| Telephone company employees | | | .50 | .41 | .29 | .48 |
| Psychiatric technicians ^a | | | .58 | .53 | .68 | .34 |
| | | | .63 | .39 | .24 | .31 |
| | | | .54 | .41 | .15 | .49 |
| | | | .64 | .68 | .35 | .51 |
| | | | | | | .36 |
| | | | | | | .51 |
| | | | | | | .40 |
| | | | | | | .55 |

^a Four time periods were used in this longitudinal study.

Adapted from (16:238)

Table 25. Predictive Validities for the OCQ

| | Turnover | Tenure | Absenteeism | Performance |
|---|--------------------------------------|------------------|----------------|------------------------------|
| Public employees | | | | |
| Hospital employees ^a | -.19*** -.17*** | .23*** .26*** | -.13*** .08 | .05 .07 .11** .10** |
| Scientists and engineers ^b | | | | |
| Psychiatric technicians | -.02 -.32** -.43*** -.43*** | | -.28*** | |
| Retail management trainees ^c | -.42** -.43** | | | .36* .33* .20 |
| Hom, Katerberg and Hulin ^d | .58** | | | |

* Significant at the .10 level.

** Significant at the .05 level.

*** Significant at the .01 level.

a For the hospital sample, four separate measures of performance were available for the one time period.

b Results presented are from four data points of a longitudinal study. Hence, the relationship between commitment and turnover increased over time.

c Results for the turnover analysis presented are from two data points of a longitudinal study representing measures taken on the employees' first day and the last 2 months in the organization. Analysis for performance were available for measures taken at three points in time and represent cross-lag relationships between commitment and subsequent performance from 4 to 6 months, 6 to 9 months, and 4 to 9 months.

d This study used a measure of actual reenlistment among part-time military personnel.

Reprinted from (16:239)

between absenteeism and organizational commitment. The relatively low correlation was attributed to the fact that both voluntary and involuntary absences were pooled in the data. Nevertheless, the conclusion was that the data was consistent with the theory. It was expected that the performance/organizational commitment relationship would be modestly strong due to other factors influencing performance. Data for hospital employees and retail management trainees consisted of independent supervisory rating. Two of four correlations were significant for hospital employees. Crampon et al's work was examined for retail management data (23). No concurrent correlations were significant, however, in subsequent time periods some significant differences between cross-lag correlations were observed. Mowday et al's work was also cited as evidence of predictive validity (24). In this study, mean level of commitment was higher at a bank with higher performance rating than another with a lower mean level of commitment. The authors concede that one cannot infer increased organizational commitment leads to higher performance, however, they believe the studies, when viewed as a whole, do indicate the relationship between organizational commitment and performance is in the predicted direction.

Norms

The authors also provided normative data in order to provide some tentative indication of how employees' scores

compares with other employees. This was done to facilitate more accurate comparative analysis of employees in other career fields having the same gender. Normative data was similar for both male and female (16:242).

Use of the Organizational Commitment Questionnaire in Current Research. Cook et al in their review of the literature on the Organizational Commitment questionnaire (OCQ) from 1974 to mid-1980 concentrates mainly on the work of Mowday, Steers and Porter (3)(16). As was discussed in the previous section, Mowday, Steers and Porter examined various studies in their 1979 effort to document the validity and reliability of the OCQ. Cook et al in addition to summarizing Mowday, Steers and Porter's work, also provided data they uncovered which was not reviewed. This additional data on internal reliability is listed in Table 26.

Table 26. OCQ Reliability Data

| Study | Sample | Coefficient alpha |
|------------------------------|---------------------------------|----------------------|
| Kerr and Jermier (25) | 113 Police officers | .86 |
| Jermier and Berkes (26) | 158 Police officers | .91 |
| Ivancevich (27) | 154 Project engineers | .84 |
| O'Reilly and Roberts (28) | 502 Naval aviation employees | .54 |

Data on scale distribution properties are in Table 27.

Table 27. OCQ Scale Distribution Properties

| Study | Sample | Mean | Standard Deviation |
|----------------------|--------------------------------|------|--------------------|
| Aldag and Brief (29) | 75 Police employees | 5.46 | 1.04 |
| Van Maanen (30) | 136 Male Police recruits | 5.1 | 1.2 |
| Van Maanen (30) | 58 Experienced police officers | 5.7 | .6 |
| Bartol (31) | 159 Computer professionals | 4.78 | - |

Cook et al also provides additional data on discriminant validity research. They report Jermier and Berkes finding a correlation of .68 between the OCQ and general job satisfaction measured by the Minnesota Satisfaction Questionnaire (26). Steers and Braunstein reported correlations of .25 between OCQ and need for achievement and .02 by the Manifest Needs Questionnaire (32). The literature review was continued using the Social Science Citation Index (SSCI) described earlier.

In 1984 Mowday, Steers and Porter's review of the validity of the OCQ was referenced in the SSCI 18 times. Eleven references were in the journals of interest described earlier. These eleven references were investigated. The breakout is shown in Table 28.

Table 28. 1984 Journal Breakout - OCQ

| <u>Journal Name</u> | <u># of Articles</u> | <u># Pertaining to OCQ Scale</u> |
|-----------------------------------|----------------------|----------------------------------|
| Academy of Management Journal | 4 | 4 |
| Human Relations | 2 | 1 |
| Organizational and Human Behavior | 2 | 2 |
| Psychological Reports | 2 | 2 |
| Journal of Applied Psychology | 1 | 1 |

As indicated in the Table above, ten of eleven articles contained information pertaining to the OCQ. Nine of the ten studies used the OCQ to measure organizational commitment. One article was critical of the OCQ. The studies contained the following data relevant to the psychometric properties of the OCQ:

- (1) Meyer and Allen (33) - Researchers conducted two studies of various instruments used in testing the "side-bet" theory of organizational commitment whereby commitment increases with accumulation of investment. During these two studies internal reliability (coefficient alphas) of .93 and .89 were calculated. These were the highest reliability coefficients calculated of the five scales examined.

- (2) Podsakoff et al (34) - Authors used the OCQ in examining the relationship of reward and punishment on subordinate responses. Although the authors cite Mowday, Steers and Porter's (1979) research on the validities/ reliability of the OCQ no independent data accumulated on the OCQ as a result of this study was reported.
- (3) Jamal (35) - This research examined the relationship between job stress and withdrawal behavior. The study was conducted in two hospitals involving 440 nurses. Cronbach coefficient alpha reliability was reported as .83.
- (4) Jenner (36) - This study used the OCQ in determining whether OCQ scores, involvement and satisfaction and hours worked at one point in time would be positively and significantly related to hours reported worked at some future point. No independent reliability /validity data was reported, however, the author concluded that while the data suggest commitment, satisfaction and involvement are related to hours volunteers work at any one point in time, they should not be used to predict volunteer hours in the future.

- (5) Maillet (37) - This study compared the OCQ with Cook and Wall's (38) commitment scale when both were translated into French. The authors concluded the scales were interchangeable with reliability coefficients of .92 for the OCQ and .87 for the Cook-Wall's scale.
- (6) Bateman and Strasser (39) - This study analyzed longitudinal data from 129 nursing department employees in an effort to determine the effect of 13 variables on organizational commitment. The authors reported coefficient alpha reliabilities of .90 and .89 as well as a test-retest reliability of .65.
- (7) Mowday, Koberg, McArthur (40) - The OCQ was used in an analysis of Mobley's (1977) model of the intermediate linkages in the turnover decision. OCQ internal consistency coefficients were reported as .91 for hospital samples and .90 for clerical samples. Additionally, a mean of 4.68 with a standard deviation for the hospital sample (N=253) and a mean of 4.47 with a standard deviation of 1.02 for the clerical sample (N=285) were reported.

- (8) Fry and Slocum (41) - This study analyzed the effect of technology and structure on work-group effectiveness. No new reliability/validity data was reported.
- (9) Stumpf and Hartman (42) - This article examined the process of organizational commitment and withdrawal individuals experience. Twelve variables were examined in the study. One of the twelve was organizational commitment. Organizational commitment was measured by the OCQ minus items regarding intention to quit. The authors report a mean of 4.88, a standard deviation of 1.19 and an internal consistency reliability (alpha) of .93. Additionally, it is reported that there was a -.69 correlation between organizational commitment and intention to quit which appears to support evidence of discriminant validity.
- (10) Farrell and Petersen (43) - This study analyzed longitudinal data in examining the relationships between loss of commitment, absenteeism and employee turnover. The significance of this article with respect to the OCQ was in the approach in analyzing data. The authors used a median based approach. They cite Mcwday, Steers and Porter's review

of the OCQ where means were of 4.0 - 6.1 were reported across nine-samples as evidence of an upward scoring bias leading to non-normal distributions (16).

In 1985, Mowday, Steers and Porter's review of the OCQ was referenced in the SSCI fifteen times. Nine of the references were in the journals of interest described earlier. These nine articles were investigated. The breakout is contained in Table 29.

Table 29. 1985 Journal Breakout - OCQ

| <u>Journal Name</u> | <u># of Articles</u> | <u># Pertaining to OCQ Scale</u> |
|---|----------------------|----------------------------------|
| Journal of Social Psychology | 1 | 1 |
| Journal of Vocational Behavior | 2 | 1 |
| Organizational Behavior and Human Performance | 1 | 1 |
| Journal of Management | 2 | 2 |
| Human Relations | 2 | 1 |
| Administrative Science Quarterly | 1 | 1 |
| Academy of Management Review | 1 | 1 |

As indicated in the table above, eight of nine articles contained information pertaining to the OCQ. The articles contained the following information relevant to the psychometric properties of the OCQ:

- (1) Martin and O'Laughlin (44) - This study investigated fifteen variables for their prediction of organizational commitment. Organizational commitment was the criterion variable and was measured by the OCQ. As part of the study of part time Army Reservist and commitment, two samples were taken. One sample consisted of 1499 non-combatants and one sample consisted of 1201 combatants. Coefficient alpha values of .86 and .81 were calculated for the two samples.
- (2) Barling (45) - This study examined the relationship between 50 husbands' degree of job involvement, job satisfaction and perceptions of organizational climate and their wives' marital satisfaction. The OCQ was used to measure the commitment aspect. No data on the OCQ was reported.
- (3) Dougherty and Pritchard (46) - This study assessed three newly developed measures of role ambiguity, role conflict, and role overload. these new measures were to be correlated with various outcome measures. The OCQ was one outcome measure used in the study. An internal consistency reliability of .89 was reported.

- (4) Krackhardt and Porter (47) - This article examined the effect of turnover on the attitude of those who remain in an organization. The OCQ was used to measure an individual's commitment after turnover. The authors report coefficient alphas ranging from .84 to .90 across three samples.
- (5) Jamal (48) - This study examined the relationship between job stress and job performance. The effect of organizational commitment in moderating the relationship between job stress and job performance was also assessed. The OCQ was used as the measure of organizational commitment. Two populations (managers and blue collar workers) were surveyed. Internal consistency reliabilities of .87 and .81 were reported.
- (6) Steel et al (14) - This study evaluated quality circle programs in two Department of Defense (DOD) organizations. Survey data from 107 members of a military organization and 165 members of a medical facility was gathered. The study reported coefficient alpha reliabilities of .88 for both groups.
- (7) Fisher (49) - This study analyzed the role of social support on the job in helping the new

employee adjust. One of the six measures of adjustment to work was the OCQ. Reliability coefficient of .87 at two points in time was reported.

- (8) Reichers (50) - This article reviewed organizational commitment concepts which have appeared in current research literature. It includes a discussion of different definitions and measurement techniques. The author suggests that there are items in the OCQ which are very close to intent to remain items which are partially responsible for the consistently high relationships between the OCQ and intent to remain measures. In addition, the author suggests that concept redundancy may be present where an attitude is hypothesized to be related to a behavior such as turnover. the author suggests that the OCQ is measuring behavioral intention and not the organizational construct. It is then suggested that organizational commitment may be more clearly understood by viewing the construct as a collection of multiple commitments.

For 1986 the literature search was conducted from January to August. Eleven references were found in journals of

interest. Nine of the references had relevant data pertaining to the OCQ. The breakout is contained in Table 30.

Table 30. 1986 Journal Breakout - OCQ

| <u>Journal Name</u> | <u># of Articles</u> | <u># Pertaining to OCQ Scale</u> |
|------------------------------------|----------------------|----------------------------------|
| Academy of Management Journal | 2 | 2 |
| Journal of Occupational Psychology | 1 | 1 |
| Academy of Management Review | 1 | 1 |
| Journal of Applied Psychology | 7 | 4 |

Investigation of those studies with data relevant to the OCQ revealed the following:

- (1) Duchon et al (51) - This study examined 49 Junior Achievement companies over a 6 month period. The study examined alternatives to conventional measures of leader-member exchanges. The OCQ was used to measure company commitment. Scale means of 5.33 with standard deviation of 1.06 for one point in time and scale mean of 5.33 with standard deviation of 1.06 was reported. No reliability/validity data for the measure was reported.

- (2) Angle and Perry (52) - This study explored the possibility of a dual-commitment to a union and an employing organization. The study was conducted on 22 municipal bus companies. Organization commitment for this study was measured by the OCQ. A coefficient alpha of .89 was reported. In addition means of 4.50 with a 1.12 standard deviation was reported.
- (3) Landau and Hammer (53) - The focus of this research was on the perceived ease of movement of two groups of clerical employees within an organization. The study also examined the relationship between perceived ease of movement, organizational commitment and intention to quit. The OCQ was used to measure organization commitment. No independent scale properties were reported.
- (4) Brooke (54) - This paper presented a model of employee absenteeism. One variable in the model is organizational commitment. The article cites the OCQ as a well-established operationalization of the organization commitment construct.
- (5) Pearce and Porter (55) - This study examined the effect of formal appraisal feedback on

employees attitude toward the appraisal system and toward the organization. The OCQ was used to assess changes in attitudes toward organizational commitment. Coefficient alpha of .89 for managers and .92 for employees were reported.

- (6) Reichers (56) - Reichers investigated several possible antecedents of organizational commitment. Organization commitment was the dependent variable and was measured by a modified version of the OCQ. Five items were used. Coefficient alpha was reported as .88.
- (7) Barling and Rosenbaum (57) - This study investigated whether a husband's work experiences can be associated with wife abuse. The measure of husbands' organizational commitment was measured by the OCQ. No independent psychometric data was reported. Sample size was small (n=18).
- (8) Blau (54) - This article tried to determine whether a measure of career commitment could be operationalized and whether this measure showed a different relationship than other measures of commitment constructs. Coefficient alphas of .89 and .88 were reported in this longitudinal study. In addition a

test-retest reliability of .74 was obtained.

The sample consisted of 119 registered nurses.

Participative Decision Making

The measurement scale for assessing participative decision making in the ASWA was developed "in-house" at AFIT. It consists of a five item questionnaire using a seven point agree-disagree response scale.

There is currently no documented reliability or validity assesment available on this measurement scale. However, Steel et al used this measure when evaluating quality circles in two DOD organizations (14). Coefficient alphas of .74 and .34 were reported for a sample of maintenance and hospital employees. The authors constructed an intercorrelation matrix with other variables used in the study. It is provided in Table 31.

It appears there is some evidence of convergent validity. For instance, a correlation of .67 was found between relationship-oriented supervision (variable 10) and participation in decision making (variable 14) in the hospital sample. This correlation was lower in the maintenance sample but still was significant. It makes sense that these variables have a significant correlation. A relationship-oriented supervisor would tend toward a more participative decision making environment.

Another interesting correlation is between communication climate and participative decision making. Harrison

Table 31. Intercorrelation Matrix

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---------------------------------------|----|-----|-----|-----|----|----|----|-----|----|----|-----|----|----|----|-----|----|----|----|----|-----|
| 1. Self-rated job performance | - | 25 | 09 | 11 | 42 | 15 | 19 | 25 | 20 | 18 | 12 | 15 | 09 | 09 | 32 | 13 | 13 | 30 | 18 | -04 |
| 2. Goal clarity | 16 | - | 21 | 41 | 35 | 54 | 33 | 29 | 57 | 57 | 39 | 46 | 60 | 43 | 29 | 49 | 25 | 38 | 33 | 07 |
| 3. Goal difficulty | 30 | 16 | - | 22 | 21 | 23 | 09 | 09 | 24 | 24 | 17 | 38 | 32 | 20 | 25 | 06 | 27 | 12 | 22 | 16 |
| 4. Goal realism | 24 | 48 | -04 | - | 34 | 36 | 04 | 27 | 45 | 32 | 16 | 38 | 34 | 39 | 27 | 14 | 29 | 29 | 18 | -02 |
| 5. Feedback | 26 | 42 | 00 | 32 | - | 37 | 20 | 35 | 46 | 50 | 32 | 37 | 44 | 48 | 52 | 41 | 36 | 52 | 53 | 13 |
| 6. Job satisfaction | 26 | 44 | -05 | 46 | 49 | - | 27 | 30 | 65 | 47 | 26 | 46 | 52 | 41 | 48 | 38 | 31 | 25 | 50 | 24 |
| 7. Job involvement (C.I.) | 11 | 25 | 10 | 22 | 24 | 31 | - | 12 | 27 | 15 | 07 | 13 | 22 | 24 | 20 | 22 | 09 | 19 | 19 | 24 |
| 8. Job involvement (S-C) | 23 | 13 | 36 | 00 | 10 | 15 | 28 | - | 40 | 19 | 25 | 25 | 27 | 24 | 34 | 11 | 18 | 26 | 09 | 00 |
| 9. Organizational commitment | 21 | 42 | 10 | 35 | 41 | 64 | 49 | 31 | - | 41 | 23 | 54 | 51 | 44 | 51 | 31 | 33 | 35 | 41 | 12 |
| 10. Relationship-oriented supervision | 23 | 49 | 40 | 39 | 53 | 45 | 40 | 25 | 49 | - | 50 | 51 | 66 | 48 | 29 | 64 | 50 | 60 | 57 | 16 |
| 11. Task-oriented supervision | 11 | 16 | 23 | -04 | 13 | 00 | 20 | 27 | 17 | 23 | - | 37 | 47 | 36 | 23 | 26 | 31 | 47 | 33 | 03 |
| 12. Group cohesiveness | 14 | 43 | 14 | 34 | 42 | 50 | 33 | 19 | 51 | 63 | 19 | - | 66 | 45 | 40 | 35 | 53 | 51 | 50 | 07 |
| 13. Communication climate | 13 | 55 | 14 | 41 | 49 | 53 | 30 | 25 | 47 | 65 | 24 | 65 | - | 53 | 41 | 51 | 52 | 59 | 58 | 10 |
| 14. Participation in decision making | 22 | 46 | 11 | 34 | 52 | 50 | 38 | 21 | 51 | 67 | 12 | 62 | 66 | - | 46 | 27 | 33 | 43 | 44 | 18 |
| 15. Goal congruence | 07 | 18 | 20 | 1 | 26 | 27 | 40 | 35 | 49 | 40 | 30 | 32 | 35 | 37 | - | 22 | 24 | 45 | 45 | 06 |
| 16. Supervisory sublety | 19 | 36 | 22 | 24 | 43 | 43 | 20 | 17 | 35 | 52 | 17 | 43 | 54 | 44 | 22 | - | 29 | 41 | 47 | 33 |
| 17. Work group support | 17 | 36 | 08 | 34 | 57 | 51 | 26 | 16 | 37 | 54 | 19 | 62 | 55 | 49 | 22 | 59 | - | 55 | 49 | 22 |
| 18. Egalitarianism | 17 | 27 | 11 | 24 | 49 | 38 | 19 | 13 | 39 | 52 | 25 | 50 | 51 | 48 | 19 | 57 | 75 | - | 52 | 20 |
| 19. Impersonality of institutions | 23 | 20 | -05 | 33 | 52 | 52 | 32 | 14 | 59 | 43 | 30 | 39 | 46 | 41 | 31 | 31 | 49 | 50 | - | 31 |
| 20. Interpersonal trust | 07 | -03 | -21 | 09 | 20 | 23 | 06 | -31 | 14 | 00 | -11 | 19 | 00 | 09 | -04 | 05 | 25 | 10 | 32 | - |

Note. Decimals have been omitted. Intercorrelations for the maintenance sample appear above the main diagonal, and the correlations for the hospital sample appear below the diagonal. With N 100 for the maintenance sample, a correlation of .20 is significant at $p .05$; with N 150 for the hospital sample a correlation of .16 is significant at $p .05$.

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stresses the view that communication is the means by which understandings about participation are created (59). Without communication it would be difficult to establish a participative decision making atmosphere. The correlation between these two variables is .66 among hospital employees and .53 among maintenance employees. This is another indication of convergent validity.

While there appears to be evidence of reliability and validity in this measurement. The data is sparse and this measurement is not used commonly in participative decision making research. A review of the SSCI resulted in finding only one study in which this measure was used. This study was Steel et al's which was mentioned previously (14). It should be noted, however that current research is being conducted which will evaluate the reliability and validity of the ASWA and its measures.

Other Measures of Participation in Decision Making.

There does not appear to be one commonly used measure of PDM in research to date. Cook et al's review of the literature from 1974 to mid-1980 mentions three measures of PDM (3). Each is discussed below:

- (1) Sutton and Rousseau (60) - This measure consists of four items scored on a four point scale. It was used in a study which examined the relationship of organizational structure, technology and dependence in a parent

organization to behaviors and attitudes. Little psychometric data on the scale was provided in Sutton and Rousseau's article. They did report an alpha reliability of .78.

- (2) Aiken and Hage (61) - Aiken and Hage's measure is included in this review even though it falls out of the 1974-1980 review time frame. It is included because other researchers were found to have used their scale during 1974-1980. Aiken and Hage use a PDM measure in their analysis of centralization in organizations. The authors view centralization as having two aspects. The first is the degree of Hierarchy in Authority and the second is the degree of Participation in Decision-making. Participation in decision making is defined as "the extent to which staff members participate in setting goals and policies of the entire organization". Aiken and Hage measure organizations as a whole and not individuals in the organizations. Scores from one organization are compared to other organizations. The PDM measure consists of four items with a 5 point response scale ranging from never to always. An average score is calculated for each

respondent, then weighted by social position and finally aggregated in organizational scores. In a study of 16 welfare organizations, scores ranged from 1.68 to 3.69 for PDM. This study compared the effect of centralization and formalization to alienation from work. One conclusion the authors reached was that lack of PDM is strongly related from alienations from work because of a Pearson-Product moment correlation of $-.059$. Little psychometric data on the scale was included in this study. Other researchers who have used this scale include Dewar, Whetten and Boje who presented data from four studies which resulted in a median alpha reliability coefficient of $.92$ (62). In addition, Glisson and Martin reported split-half reliability of $.88$ based on a sample of 408 respondents (63).

- (3) Yukl and Kanuk (64) - Yukl and Kanuk use a PDM scale as part of a Leadership Behavior Scale consisting of nine aspects. Decision participation was defined as the extent to which a leader consults with subordinates and otherwise allows them to participate in making decisions, and the amount of

subordinate influence over the leader's decisions that results from this participation. The scale development was documented by Yukl and Nemeroff (65). Internal consistency was determined using Cronbach's alpha coefficient. Alpha coefficients of .77, .82, .80, .77, and .90 were calculated for five different samples. Test-retest data was collected after an interval from five to ten weeks. Participation in decision making test-retest reliability was calculated at .65. The authors considered this within acceptable ranges. Inter-rater agreement was calculated under the assumption that if different subordinates describe the same leader's behavior the same way the measurement is more accurate. Inter-rater agreement was tested by computing a one-way analysis of variance across groups of respondents for each sample. Decision participation was among the lowest in the degree of agreement among respondents. No explanations were discussed. Convergent validity was determined by correlating the PDM scale with students checklist of a teacher's behavior. A correlation of .69 was calculated. The

authors concluded their scales had acceptable psychometric properties.

A further search of additional PDM measures was accomplished by reviewing the PermuTerm index of the Social Science Citation Index. The PermuTerm index identifies articles with the key work in the title of the articles. The keyword used for the search for PDM measure was "Participation". Under the heading "Participation" was a sub-item called "decision-making". This search covered the years 1984, 1985 and 1986. Only one article was found which was in one of the journals of interest. In this article, Harrison examines how participative decision making is established through informal organization channels (59). Harrison uses a PDM measure first developed by MOHR (66). This measure consists of 5 items scored on a scale containing five responses ranging from highly accurate to very accurate. Harrison reports a coefficient alpha of .81 for this measure. A mean of 3.77 with a s. d. of 1.44 was reported. Mohr reports a mean of 3.4 with a s. d. of .63 in his study analyzing participativeness as a dependent variable (66).

A final search for other measures of PDM was accomplished by a review of all volumes of the Journal of Applied Psychology and the Academy of Management Journal for the years 1984-1986. Three articles were found which employed PDM measures. They are:

- (1) Marks et al (67) - In this study of the impact of employee participation in quality circles, the authors used the Michigan Organizational Assessment Package. This instrument has two item assessing satisfaction with opportunities to take part in decisions. Seashore et al review psychometric properties of the Michigan Organizational Assessment Package (68). The two item PDM scale is part of the supervision module in this instrument. An internal consistency alpha of .76 is reported. Little validity data is reported by the the authors generally conclude validity is present because participation did not show strong relationships with varying conditions of overload. It did have a stronger relationship to attitude measures where high intrinsic rewards were important. Marks et al used only one of the two item PDM scale (67). No additional psychometric data was reported.
- (2) Scandura, Graen and Novak (69) - In this study of antecedents of decision influence, the authors use a 8 item Likert-style measure. The scale was not presented. The

authors report a Cronbach alpha reliability of .90.

- (3) Erez and Arad (70) - The authors examined the effect of participation in goal setting on performance and attitudes. A two item scale was used with responses ranging from 1 (totally no influence) to 5 (total influence). the item questions were: "Compared to the supervisor, how much influence did the other group members have" and "Compared to the supervisor, how much influence did the other group members have over the goal that was set". The only psychometric data reported was a $r=.48$ between the measures.

IV. Conclusions/Recommendations

This chapter contains conclusions and recommendations reached as a result of this research. It contains general observations and specific recommendations for changes in the AFIT Survey of Work Attitudes as well as suggestions for future research. Specific areas in need of attention are discussed.

Documentation

Although this research has documented the history and development of the AFIT Survey of Work Attitudes, more documentation is needed on data gathered by researchers who used the survey. It should be more concerned with unpublished data which this report did not address. This information could be very useful in further validity/reliability analysis of the survey. This report used existing research listed in professional journals on scales found in the AFIT survey to assess their appropriateness. This method will be ineffective in some cases where a scale was developed "in-house" with no basis or use in the literature today. In addition, the constructs measured should be precisely defined by the principal author of the survey. This would facilitate future validity studies in insuring the scale is measuring what 's intended to measure. Sometimes construct which seem to be the same are actually different because of the manner in which they have been defined.

Job Satisfaction

The job satisfaction scale used in the AFIT survey was developed by Andrews and Withey (5). Although Andrews and Withey provided extensive psychometric data on their scale, it was not being used in organizational research literature. In fact, other than one article published by an AFIT researcher there was not one study found which used the measure. It may be because Andrews and Withey's research was oriented more toward assessing peoples' attitudes toward "life-as-a-whole" as opposed to one's work attitudes within an organizational setting. To remain more consistent with other researchers conducting organizational research, a more commonly used measure should be selected. There are certainly no shortages of measures in use today. Cook et al in their 1980 review of job satisfaction measures list 46 different scales (3). In reviewing the job satisfaction literature for evidence of use of Andrews and Withey's job satisfaction scale, the most commonly used scale appeared to be the Minnesota Satisfaction Questionnaire (MSQ). This was the scale used in the original version of the AFIT survey. This scale has an abundance of good reliability/validity data available (3). The reason for changing to the shorter Andrews and Withey scale in Version II of the survey was that the MSQ was too long. If this is still a concern to the researcher another commonly used measure of overall job satisfaction is a five-item measure contained in the Job

Diagnostic Survey developed by Hackman and Oldham (71). This also has an abundance of reliability/validity data available (3).

Organizational Commitment

The AFIT survey uses the Organization Commitment Questionnaire (OCQ) developed by Mowday, Steers and Porter (16). This measurement is scale was the one most commonly found in organizational commitment literature reviewed during this research effort. It is well documented and as cited earlier contains acceptable psychometric scale properties. This measure should remain unchanged in the AFIT survey.

Participation in Decision Making

The Participation in Decision Making (PDM) measure used in the AFIT survey was created "in-house" at AFIT. It has very little psychometric scale data available to evaluate its appropriateness. The data available from Steel et al's analysis of quality circles appears to indicate that the measure may contain acceptable properties. However, much more analysis is needed before full confidence can be established.

In the research literature reviewed in this study, the PDM measure was generally included in surveys assessing leadership behavior (59)(64)(65)(66)(69). There was no one dominant scale used in the literature reviewed in this study. It may be because PDM is generally regarded as one

aspect of the larger leadership behavior investigations that PDM is not give "individual" attention. All of the scales seem to consist of a small number of items (usually four) with questions concerning whether the employees is given the opportunity to be involved in decision making and the frequency with which the individual participates. One property of the current PDM scale in the AFIT survey which is more attractive than others reviewed is the seven point response scale it contains. Miller has conducted research which suggests the number seven is the number which provides the most discrimination for humans (10). Andrews and Withey used a seven point response scale in developing their scale measuring different aspects of well-being with favorable response distributions resulting (5). The PDM scale currently used is as good as any reviewed. Further validity/reliability data should be collected on the PDM measure. It should remain in the survey due to the lack of any predominant measure in the literature today.

Overall

The technical review of the AFIT Survey of Work Attitudes is an appropriate endeavor at this point in the life of the instrument. It is hoped that this research has contributed to that larger undertaking.

APPENDIX A: Studies Using Survey Data

- Steel, R. P., & Mento, A. J. (in press). The participation - performance controversy reconsidered: Subordinate competence as a mitigating factor. Group and Organization Studies.
- Steel, R. P., Mento, A. J., Dilla, B. L., Ovalle, N. K., 2d, & Lloyd, R. F. (1985). Factors influencing the success and failure of two quality circles programs. Journal of Management, 11, 99-119.
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- Steel, R. P., & Shane, G. S. (1987). How does absenteeism affect federal workers' performance. Defense Management Journal, 23(2&3), 23-27.
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- Steel, R. P. (1984). Achievement motivation as an individual differences moderator in military task design research. Proceedings of the 26th Annual Conference of the Military Testing Association (Vol. II), 897-902.
- Steel, R. P., Hendrix, W. H., & Mento, A. J. (1986). Joint influence of perceived task dimensions, felt competence, and job involvement on the work performance of armed forces personnel: A longitudinal investigation (Abstract). Proceedings of the 46th Annual Meeting of the Academy of Management, 401.
- Steel, R. P., & Mento, A. J. (1986, August). Situational constraints within Air Force task environments. Paper presented at the 94th annual convention of the American Psychological Association.

- Steel, R. P., & Ovalle, M. K., 2d. (1984, August). Impact of organizational commitment on the responses of military personnel. Paper presented at the 92nd annual convention of the American Psychological Association, Toronto, Canada.
- Steel, R. P., & Shane, G. S. (1985). Job involvement and organizational commitment: Towards an integrative framework. Proceedings of the 23rd Annual Meeting of the Southern Management Association, 223-225.
- Steel, R. P., & Shane, G. S. (1985). Effects of absenteeism on the performance of air national guard personnel. Proceedings of the 27th Annual Conference of the Military Testing Association (Vol. I), 426-431.
- Steel, R. P., Hendrix, W. H., & Mento, A. J. (1987). Joint influence of perceived task dimensions, felt competence, and job involvement on the work performance of armed forces personnel: A longitudinal investigation. Manuscript submitted for publication.
- Steel, R. P., Hendrix, W. H., & Shane, G. S. (1987). Organizational commitment: A conceptual synthesis and empirical test. Manuscript undergoing revision.
- Steel, R. P., Jennings, K. R., & Lindsey, J. T. (1987). Making money with quality circles: Program evaluation findings from a United States federal mint. Manuscript in preparation.
- Steel, R. P., & Lloyd, R. F. (1987). Cognitive, affective, and behavioral outcomes of participation in quality circles: Conceptual and empirical findings. The Journal of Applied Behavioral Science (accepted with revision).
- Steel, R. P., & Mento, A. J. (1987). Situational constraints within air force task environments. Manuscript submitted for publication.

APPENDIX B: Use of the "AFIT Survey of Work Attitudes"

| ORGANIZATION(S) | BRANCH OF SERVICE | SAMPLE SIZE | TYPES OF MEASURES |
|--|-------------------|-------------|-------------------|
| CIVIL ENGINEERING (TAC) | USAF | 51 | ATT |
| HOSPITAL | USAF | 17 | ATT |
| CIVIL ENGINEERING & AIRCRAFT MAINTENANCE (TAC) | USAF | 14 | ATT |
| TRANSPORTATION SQUADRON | USAF | 120 | ATT, PERF |
| HOSPITAL | USA | 20 | ATT |
| CIVIL ENGINEERING | USA | 140 | ATT |
| MISSILE MAINTENANCE, CIVIL ENGINEERING, & TRAINING (SAC) | USAF | 225 | ATT, PERF |
| CIVIL ENGINEERING & GENERAL ADMINISTRATION | USAF | 200 | ATT, PERF |
| ELECTRICAL MANUFACTURING | NA | 140 | ATT |
| FEDERAL MINT | CIVIL | 220 | ATT, PERF, OBJ |
| UNIVERSITY | NA | 300 | ATT, PERF, OBJ |
| VA HOSPITAL | CIVIL | | |

LEGEND: USAF (AIR FORCE), USA (ARMY); ATT (ATTITUDES), PERF (PERFORMANCE APPRAISALS), OBJ (OBJECTIVE MEASURES).

APPENDIX C: Index of Construct Measured by Survey Item #

| SURVEY PAGE # | SECTION TITLE | CONSTRUCT MEASURED |
|------------------|--|--|
| 1 & 2 | Background Info Ques 1-7 | Background Info |
| 3 | Job Satisfaction Ques 5-12 | Job Satisfaction |
| 4 | Supervisor's Assessment of Your Performance Ques 13-17 | Self-Appr, Job Perf |
| 5 | Job Effort Rating Ques 18 | Effort Rating |
| 5 | Future Work Plans Ques 19 | Intent to Quit/Remain |
| 5 & 6 | Organization Info Ques 20-34 | Organizational Commitment |
| 7 | Job Information Ques 35-39 | Job Autonomy |
| 7 | Ques 40-44 | Central Life Interest |
| 7 | Ques 46-48 | Self Concept |
| 7 | Ques 45 & 49 | Not Used |
| 8 | Work Role Attitudes Ques 50-54 | Participative Decision Making (Attitudes) |
| 8 | Ques 55-57 | J/O Stress |
| 8 | Ques 58-60 | Interpersonal Trust |
| 3 & 9 | Ques 61-63 | Group Cohesiveness |
| 9 | Ques 64 & 66 | Relationship/Oriented |
| 9 | Ques 65 & 67 | Task/Oriented |
| 9 | Ques 68-71 | Communication Climate |
| 10 | Work Goals Ques 72-75 | Goal Clarity |
| 10 | Ques 76-80 | Goal Difficulty |
| 11 | Ques 1-4 | Goal Realism |

| SURVEY PAGE # | SECTION TITLE | CONSTRUCT MEASURED |
|------------------|--|-------------------------|
| | Job Characteristics | |
| 14 | Ques 8, 12, 16 | Task Significance |
| 13 & 14 | Ques 5, 13, 15 | Task Autonomy |
| 13 & 14 | Ques 7, 9, 11 | Task Variety |
| 13 & 14 | Ques 6, 10, 14 | Task Identity |
| | Job Feedback | |
| 15 | Ques 17-21 | Job Feedback |
| | Task Preferences | |
| 15 & 16 | Ques 22-26 | Need for Achievement |
| 16 | Ques 27-31 | Need for Affiliation |
| | Task Demands | |
| 17 | Ques 32-44 | Sense of Competence |
| | Situational Attributes | |
| 18 | Ques 45-47 | Situational Attributes |
| | Goal Agreement | |
| 18 | Ques 48 | Goal Agreement |
| | Self Perceived Ability | |
| 18 | Ques 49 | Self Perceived Ability |
| | Performance Obstacles & Constraints | |
| 19 | Ques 50-53 | Obstacles & Constraints |
| 19 | Ques 54 | Frustration |

APPENDIX D: Measures of Global Life Quality

- G1 How do you feel about your life as a whole? (D-T Scale) Short name: Life 1.
- G2 Same measure as G1, asked later in interview. Short name: Life 2.
- G5 Which face comes closest to expressing how you feel about your life as a whole? (Scale: seven faces with varying smiles or frowns) Short name: Faces: whole life.
- G6 Here is a picture of a ladder. At the bottom of the ladder is the worst life you might reasonably expect to have. At the top is the best life you might expect to have. Of course, life from week to week falls somewhere in between. Where was your life most of the time during the past year? (Scale: ladder with nine rungs extending from "Best life I could expect to have" to "Worse life I could expect to have") Short name: Ladder: most.
- G7 Here are some circles that we can imagine represent the lives of different people. Circle eight has all pluses in it, to represent a person who has all good things in his life. Circle zero has all minuses in it, to represent a person who has all bad things in his life. Other circles are in between. Which circle do you think comes closest to matching your life? (Scale: row of nine circles with contents ranging from eight +'s to eight -'s) Short name: Circles: whole life.
- G29 How satisfied are you with your life as a whole these days? (Seven-pt. scale: Completely satisfied ... completely dissatisfied) Short name: Seven-pt. Satisfaction.

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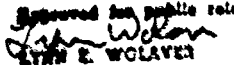
VITA

Captain Mark L. Bergeron was born on 20 July 1955 in San Diego, California. He graduated from high school in Ewen, Michigan, in 1973 and attended Michigan Technological University, from which he received the degree of Bachelor of Science in Business Administration in August 1979. Upon graduation he received a commission in the USAF through Officer Training School at Lackland AFB, Texas. His first assignment was to Eglin AFB, Florida where he worked as a project officer on the Low Level Laser Guided bomb program. He then served as a contracting officer on the F-15 engine program at the Air Force Plant Representative Office located at General Electric Company, Cincinnati, Ohio. He entered the School of Systems and Logistics, Air Force Institute of Technology, in May 1986.

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REPORT DOCUMENTATION PAGE

| | | | | | |
|---|-------|---|---|---|--------------------------------|
| 1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED | | | 1b. RESTRICTIVE MARKINGS | | |
| 2a. SECURITY CLASSIFICATION AUTHORITY | | | 3. DISTRIBUTION / AVAILABILITY OF REPORT Approved for public release; distribution unlimited. | | |
| 2b. DECLASSIFICATION / DOWNGRADING SCHEDULE | | | | | |
| 4. PERFORMING ORGANIZATION REPORT NUMBER(S) AFIT/GLM/LSR/87S-5 | | | 5. MONITORING ORGANIZATION REPORT NUMBER(S) | | |
| 6a. NAME OF PERFORMING ORGANIZATION School of Systems and Logistics | | 6b. OFFICE SYMBOL (If applicable) AFIT/LSY | | 7a. NAME OF MONITORING ORGANIZATION | |
| 6c. ADDRESS (City, State, and ZIP Code) Air Force Institute of Technology Wright-Patterson AFB OH 45433-6583 | | | | 7b. ADDRESS (City, State, and ZIP Code) | |
| 8a. NAME OF FUNDING / SPONSORING ORGANIZATION | | 8b. OFFICE SYMBOL (If applicable) | | 9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER | |
| 8c. ADDRESS (City, State, and ZIP Code) | | | | 10. SOURCE OF FUNDING NUMBERS | |
| | | | | PROGRAM ELEMENT NO. | PROJECT NO. |
| | | | | TASK NO. | WORK UNIT ACCESSION N |
| 11. TITLE (Include Security Classification) See Box 19 | | | | | |
| 12. PERSONAL AUTHOR(S) Mark L. Bergeron, B.S., Capt., USAF | | | | | |
| 13a. TYPE OF REPORT MS Thesis | | 13b. TIME COVERED FROM _____ TO _____ | | 14. DATE OF REPORT (Year, Month, Day) 1987 September | |
| 15. PAGE COUNT 104 | | | | | |
| 16. SUPPLEMENTARY NOTATION | | | | | |
| 17. COSATI CODES | | | 18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number) | | |
| FIELD | GROUP | SUB-GROUP | Attitudes, Job satisfaction, Organizational commitment, Decision making | | |
| 05 | 07 | | | | |
| | | | | | |
| 19. ABSTRACT (Continue on reverse if necessary and identify by block number) | | | | | |
| TITLE: Assessment of the AFIT SURVEY OF WORK ATTITUDES: History and Review of Three Scales | | | | | |
| Thesis Chairman: John A. Ballard, Lt Col, USAF Assistant Professor of Management and Organizational Behavior | | | | | |
| <p>Approved for public release: LTR AFH 120-14  LYNN E. WOLAVER 24 Sep 87 Dept for Research and Professional Development Air Force Institute of Technology (AFIT) Wright-Patterson AFB OH 45433</p> | | | | | |
| 20. DISTRIBUTION / AVAILABILITY OF ABSTRACT <input type="checkbox"/> UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT <input type="checkbox"/> DTIC USERS | | | 21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED | | |
| 22a. NAME OF RESPONSIBLE INDIVIDUAL John A. Ballard, Lt Col, USAF | | | 22b. TELEPHONE (Include Area Code) (513) 255-4529 | | 22c. OFFICE SYMBOL AFIT/LSR |

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BLK 19. ABSTRACT

The purpose of this study was to make an initial assessment of the "AFIT SURVEY OF WORK ATTITUDES". The historical basis and the development of the survey were documented. Survey constructs and measurement scales were identified. A literature review was conducted to document the reliability/validity of three of the scales used in the survey to measure Job Satisfaction, Organizational Commitment and Participation in Decision Making. The literature was also searched to determine the frequency of use of each scale by researchers in the organizational behavior field.

The study found that the job satisfaction scale was not commonly used and an alternate scale was suggested. The organizational commitment scale was commonly used in research and had strong validity/reliability data. There was no one dominant participation in decision making scale (PDM) discovered in the review. It was recommended that the existing PDM scale be used but suggested that additional reliability/validity data be gathered.

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